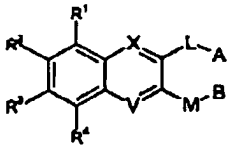
Attorney Docket No.: 5686.200-US
Express Mail Label No.: EV 246880709 US
Application No.: 09/483,504
Filed: January 14, 2000
Inventors: Teng et al.

**Amendments To The Claims**

The listing of claims will replace all prior versions, and listings, of the claims in the application.

**Listing Of Claims:**

Claim 1 (Currently amended) A compound of formula (I):



(I)

wherein

$R^1$, $R^2$, $R^3$ and $R^4$ independently are hydrogen, halogen, $-CF_3$ or $-NO_2$,

X and V are =N-,

L is $-SO_2-CH_2-$, ~~-S-, -SH, $-NH_2$ or -NH-~~,

M is $-NR^9-CH_2$, $-SO_2$-alkylene, -S-alkylene, -SO-alkylene, -NH-, $-NH_2$ or a valence bond,

wherein $R^9$ is hydrogen, lower alkyl, cycloalkyl or a heteroaryl which is a 3 to 10 membered ring containing one or more heteroatoms selected from nitrogen, oxygen and sulfur,

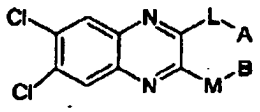
in which the cycloalkyl and heteroaryl rings may optionally be substituted with one or more substituents independently selected from halogen, lower alkyl, lower alkanoyl, -OH, $-CH_2OH$, $-NO_2$, -CN, -C(O)OH, -O-lower alkyl, $-C(O)OCH_3$, $-C(O)NH_2$, $-OCH_2C(O)NH_2$, $-NH_2$, $-N(CH_3)_2$, $-CH_2N(CH_3)_2$, $-SO_2NH_2$, $-OCHF_2$, $-CF_3$ and $-OCF_3$,

A and B independently are hydrogen or lower alkyl,

as well as any optical or geometric isomer or mixture of optical or geometric isomers, or any tautomeric form thereof or a pharmaceutically acceptable salt thereof.

Claims 2-36 (Cancelled)

Claim 37 (Currently Amended) A compound ~~of claim 1~~ of formula (V):



(V)

wherein

L is $-SO_2-CH_2-$, -S-, or -SH,

M is $-NR^9-CH_2$, $-SO_2$-alkylene, -S-alkylene, -SO-alkylene, -NH-, $-NH_2$ or a valence bond,

wherein $R^9$ is hydrogen, lower alkyl, cycloalkyl or a heteroaryl which is a 3 to 10 membered ring containing one or more heteroatoms selected from nitrogen, oxygen and sulfur,

in which the cycloalkyl and heteroaryl rings may optionally be substituted with one or more substituents independently selected from halogen, lower alkyl, lower alkanoyl, -OH, $-CH_2OH$, $-NO_2$, -CN, -C(O)OH, -O-lower alkyl, $-C(O)OCH_3$, $-C(O)NH_2$, $-OCH_2C(O)NH_2$, $-NH_2$, $-N(CH_3)_2$, $-CH_2N(CH_3)_2$, $-SO_2NH_2$, $-OCHF_2$, $-CF_3$ and $-OCF_3$,

A and B independently are hydrogen or lower alkyl,

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as well as any optical or geometric isomer or mixture of optical or geometric isomers, or any tautomeric form thereof or a pharmaceutically acceptable salt thereof.

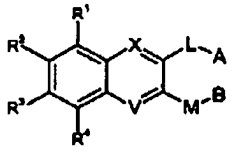
Claims 38-51 (Cancelled)

Claim 52 (Previously presented) A pharmaceutical composition comprising a compound according to claim 1 together with a pharmaceutically acceptable carrier or excipient.

Claim 53 (Previously presented) A pharmaceutical composition according to claim 52 in unit dosage form, said composition comprising from about 0.05 mg to about 1000 mg of the compound.

Claims 54-64 (Cancelled)

Claim 65 (Currently amended) A method for the treatment of disorders or diseases wherein an activation of the human GLP-1 receptor is beneficial, said method comprising administering to a subject in need thereof an effective amount of a compound ~~according to claim 1~~ of formula (I):




(I)

wherein

$R^1$, $R^2$, $R^3$ and $R^4$ independently are hydrogen, halogen, $-CF_3$ or $-NO_2$,

X and V are =N-,

L is $-SO_2-CH_2-$, -S-, -SH, $-NH_2$ or -NH-,

M is $-NR^9-CH_2$, $-SO_2$-alkylene, -S-alkylene, -SO-alkylene, -NH-, $-NH_2$ or a valence bond,

wherein $R^9$ is hydrogen, lower alkyl, cycloalkyl or a heteroaryl which is a 3 to 10 membered ring containing one or more heteroatoms selected from nitrogen, oxygen and sulfur,

in which the cycloalkyl and heteroaryl rings may optionally be substituted with one or more substituents independently selected from halogen, lower alkyl, lower alkanoyl, -OH, $-CH_2OH$, $-NO_2$, -CN, -C(O)OH, -O-lower alkyl, $-C(O)OCH_3$, $-C(O)NH_2$, $-OCH_2C(O)NH_2$, $-NH_2$, $-N(CH_3)_2$, $-CH_2N(CH_3)_2$, $-SO_2NH_2$, $-OCHF_2$, $-CF_3$ and $-OCF_3$,

A and B independently are hydrogen or lower alkyl,

as well as any optical or geometric isomer or mixture of optical or geometric isomers, or any tautomeric form thereof or a pharmaceutically acceptable salt thereof.

Claim 66 (Previously presented) The method according to claim 65 wherein the effective amount of the compound is in the range of from about 0.05 mg to about 2000 mg per day.

Claim 67 (Previously presented) A pharmaceutical composition according to claim 52 in unit dosage form, said composition comprising from about 0.1 mg to about 500 mg of the compound.

Claim 68 (Previously presented) A pharmaceutical composition according to claim 52 in unit dosage form, said composition comprising from about 0.5 mg to about 200 mg of the compound.

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Claim 69 (Previously presented) The method according to claim 65 wherein the effective amount of the compound is in the range of from about 0.1 mg to about 1000 mg per day.

Claim 70 (Previously presented) The method according to claim 65 wherein the effective amount of the compound is in the range of from about 0.5 mg to about 500 mg per day.

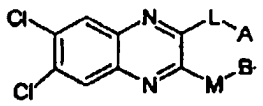
Claim 71 (New) A pharmaceutical composition comprising a compound according to claim 37 together with a pharmaceutically acceptable carrier or excipient.

Claim 72 (New) A pharmaceutical composition according to claim 71 in unit dosage form, said composition comprising from about 0.05 mg to about 1000 mg of the compound.

Claim 73 (New) A pharmaceutical composition according to claim 71 in unit dosage form, said composition comprising from about 0.1 mg to about 500 mg of the compound.

Claim 74 (New) A pharmaceutical composition according to claim 71 in unit dosage form, said composition comprising from about 0.5 mg to about 200 mg of the compound.

Claim 75 (New) A method for the treatment of disorders or diseases wherein an activation of the human GLP-1 receptor is beneficial, said method comprising administering to a subject in need thereof an effective amount of a compound of formula (V):




(V)

wherein

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L is $-SO_2-CH_2-$, -S-, -SH, $-NH_2$ or -NH-,

M is $-NR^9-CH_2$, $-SO_2$-alkylene, -S-alkylene, -SO-alkylene, -NH-, $-NH_2$ or a valence bond,

wherein $R^9$ is hydrogen, lower alkyl, cycloalkyl or a heteroaryl which is a 3 to 10 membered ring containing one or more heteroatoms selected from nitrogen, oxygen and sulfur,

in which the cycloalkyl and heteroaryl rings may optionally be substituted with one or more substituents independently selected from halogen, lower alkyl, lower alkanoyl, -OH, $-CH_2OH$, $-NO_2$, -CN, -C(O)OH, -O-lower alkyl, $-C(O)OCH_3$, $-C(O)NH_2$, $-OCH_2C(O)NH_2$, $-NH_2$, $-N(CH_3)_2$, $-CH_2N(CH_3)_2$, $-SO_2NH_2$, $-OCHF_2$, $-CF_3$ and $-OCF_3$,

A and B independently are hydrogen or lower alkyl,

as well as any optical or geometric isomer or mixture of optical or geometric isomers, or any tautomeric form thereof or a pharmaceutically acceptable salt thereof.

Claim 76 (New) The method according to claim 75 wherein the effective amount of the compound is in the range of from about 0.05 mg to about 2000 mg per day.

Claim 77 (New) The method according to claim 75 wherein the effective amount of the compound is in the range of from about 0.1 mg to about 1000 mg per day.

Claim 78 (New) The method according to claim 75 wherein the effective amount of the compound is in the range of from about 0.5 mg to about 500 mg per day.

Claim 79 (New) A compound selected from the group consisting of
6,7-Dichloro-3-methyl-2-(methylsulfonyl)quinoxaline,
(6,7-Dichloro-3-methylsulfonylquinoxalin-2-yl)amine,

6,7-Dichloro-2-methylsulfonyl-3-(methylsulfonyl)methyl-quinoxaline,

6,7-Dichloro-2-isopropyl-3-(isopropyl-2-sulfonyl)quinoxaline ,

6,7-Dichloro-2-isopropyl-3-(methylsulfonyl)quinoxaline,

6,7-Dichloro-2-(isopropylsulfonyl)-3-[(isopropylsulfonyl)methyl]quinoxaline,

6,7-Dichloro-2-isobutyl-3-(methylsulfonyl)quinoxaline,

2-(*Sec*-butyl)-6,7-dichloro-3-(methylsulfonyl)quinoxaline,

N-[6,7-Dichloro-3-(methylsulfonyl)-2-quinoxalinyl]-N-isopropylamine,

N-(6,7-Dichloro-3-(methylsulfonyl)-2-quinoxalinyl)-N-methyl-N-isopropylamine,

N-(6,7-Dichloro-3-(methylsulfonyl)-2-quinoxalinyl)-N-ethylamine,

N-(6,7-Dichloro-3-(methylsulfonyl)-2-quinoxalinyl)-N,N-dimethylamine,

6,7-Dichloro-3-ethyl-2-(methylsulfonyl)quinoxaline,

6,7-Dichloro-2-(methylsulfonyl)-3-hexylquinoxaline,

6,7-Dichloro-2-(methylsulfonyl)-3-propylquinoxaline,

6,7-Dichloro-2-(isopropylsulfonyl)-3-propylquinoxaline,

N-[6,7-Dichloro-3-(methylsulfonyl)-2-quinoxalinyl]-N-*tert*-butylamine,

N-[6,7-Dichloro-3-(methylsulfonyl)-2-quinoxalinyl]-N-isobutylamine,

5,6,7,8-Tetrachloro-2-isopropyl-3-(methylsulfonyl)quinoxaline,

(6,7-Dichloro-3-methylsulfonylquinoxalin-2-yl)cyclopropylamine,

(6,7-Dichloro-3-methylsulfonylquinoxalin-2-yl)cyclopentylamine,

(6,7-Dichloro-3-methylsulfonylquinoxalin-2-yl)-*sec*-butylamine,

(6,7-Dichloro-)-3-(methylsulfonyl)quinoxalin-2-yl)-1-ethylpropylamine,

(7-Chloro-3-(methylsulfonyl)-6-nitroquinoxalin-2-yl)*sec*-butylamine,

(6-Chloro-3-methylsulfonyl-7-nitro-8-trifluoromethylquinoxalin-2-yl)isopropylamine,

(6,7-Dichloro-3-(methylsulfonyl)-quinoxalin-2-yl)*tert*-pentylamine,

6,7-Dichloro-2-(isopropylsulfanyl)-3-(methylsulfonyl)quinoxaline,

(5-Chloro-3-methylsulfonyl-7-trifluoromethyl-2-quinoxalin-2-yl)-*tert*-butylamine,

(3-Methylsulfonyl-6,7-dinitroquinoxalin-2-yl)-*tert*-butylamine,

6-Chloro-2-(3-methylbutylsulfonyl)quinoxaline,

(6,7-Dichloro-3-methanesulfonylquinoxalin-2-yl)-[2-(2,4-dichlorophenyl)ethyl]amine,

(6,7-Dichloro-3-methanesulfonylquinoxalin-2-yl)-[2-(2-fluorophenyl)ethyl]amine,

3-[2-(6,7-Dichloro-3-methanesulfonyl-quinoxalin-2-ylamino)ethyl]phenol,

(6,7-Dichloro-3-methanesulfonylquinoxalin-2-yl)-[2-(3-fluorophenyl)ethyl]amine,

(6,7-Dichloro-3-methanesulfonylquinoxalin-2-yl)dimethylamine,

6,7-Dichloro-2-isopropylsulfanyl-3-methanesulfonylquinoxaline,

(6-Chloro-3-methanesulfonylquinoxalin-2-yl)dimethylamine,

6-Chloro-3-isopropylsulfanyl-2-methanesulfonylquinoxaline,

(6,7-Dichloro-3-methanesulfonylquinoxalin-2-yl)-[2-(2,4-dichlorophenyl)ethyl]amine,

(6,7-Dichloro-3-methanesulfonylquinoxalin-2-yl)-[2-(2-fluorophenyl)ethyl]amine,

3-[2-(6,7-Dichloro-3-methanesulfonyl-quinoxalin-2-ylamino)ethyl]phenol,

(6,7-Dichloro-3-methanesulfonylquinoxalin-2-yl)-[2-(3-fluorophenyl)ethyl]amine,

(6,7-Dichloro-3-methanesulfonylquinoxalin-2-yl)dimethylamine,

6,7-Dichloro-2-isopropylsulfanyl-3-methanesulfonylquinoxaline,

(6-Chloro-3-methanesulfonylquinoxalin-2-yl)dimethylamine, and

6-Chloro-3-isopropylsulfanyl-2-methanesulfonylquinoxaline

as well as any optical or geometric isomer or mixture of optical or geometric isomers, or any tautomeric form thereof or a pharmaceutically acceptable salt thereof.

Claim 80 (New) A pharmaceutical composition comprising a compound according to claim 79 together with a pharmaceutically acceptable carrier or excipient.

Claim 81 (New) A pharmaceutical composition according to claim 80 in unit dosage form, said composition comprising from about 0.05 mg to about 1000 mg of the compound.

Claim 82 (New) A pharmaceutical composition according to claim 80 in unit dosage form, said composition comprising from about 0.1 mg to about 500 mg of the compound.

Claim 83 (New) A pharmaceutical composition according to claim 80 in unit dosage form, said composition comprising from about 0.5 mg to about 200 mg of the compound.

Claim 84 (New) A method for the treatment of disorders or diseases wherein an activation of the human GLP-1 receptor is beneficial, said method comprising administering to a subject in need thereof an effective amount of a compound of claim 79.

Claim 85 (New) The method according to claim 84 wherein the effective amount of the compound is in the range of from about 0.05 mg to about 2000 mg per day.

Claim 86 (New) The method according to claim 84 wherein the effective amount of the compound is in the range of from about 0.1 mg to about 1000 mg per day.

Claim 87 (New) The method according to claim 84 wherein the effective amount of the compound is in the range of from about 0.5 mg to about 500 mg per day.

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**Remarks/Arguments**

Reconsideration and allowance are respectfully requested. Claims 1, 37, 52-53 and 65-87 are pending and are at issue following entry of this Amendment. Claim 1 has been amended for a second time to clarify the number and nature of the heteroatoms in the R9 heteroaryl moiety and to overcome the cited prior art. Added claims 71-78 depend from previously presented claim 37 and added claims 79-87 are directed to specific compounds from the Examples that fall within the elected invention. The amendments to the claims presented herein therefore do not add new matter and will not require any further search by the Examiner. Accordingly, the Examiner is requested to enter these amendments.

**Rejections under 35 U.S.C. §112 second paragraph**

Claims 1, 37, 52-53, and 65-70 are rejected under 35 U.S.C. §112, second paragraph as being indefinite on the following grounds:

A) over the recitation of R9 (the variable M in claim 1 can be NR9-CH2-) as a heteroaryl because the claims are silent about the number and nature of the heteroatoms in the ring and their exact point of connection with the N of the bridge when present; and

B) claim 65, for not being limited to a single disease or disorder; the Examiner stating that the claim should be limited to the specific diseases as per the tests conducted on page 166 of the specification.

These rejections are respectfully traversed and each rejection is addressed below:

A) claim 1 has been amended to recite the number and nature of the heteroatoms that may be in the heteroaryl ring and Applicants submit that the ring may be connected to the bridging nitrogen at any ring atom that would permit such a connection.

B) claim 65 as written has a clear and definite meaning to one of ordinary skill in the art. Under section 112, second paragraph, the breadth of a claim is not to be equated with indefiniteness. Rather, all that is required by section 112, second paragraph is that one of ordinary skill in the art reading the claims would understand the nature of the language recited in the claim in light of the specification. Here, claim 65 is directed to a method for the treatment of disorders or diseases wherein an activation of the human GLP-1 receptor is beneficial and the specification clearly discloses on page 41, lines 6-17 disorders and diseases where activation of the GLP-1 receptor is beneficial. Thus, the language of claim 65 is in compliance with the requirements of section 112, second paragraph and should not be limited to a single disease or disorder.

For the foregoing reasons, Applicants submit that the above amendments and remarks address the rejections of the claims under 35 U.S.C. §112, second paragraph and withdrawal of these rejections is therefore respectfully requested.

**Rejections under 35 U.S.C. §102 (b)**

Claims 1, 37, 52-53 and 65-70 are rejected under 102 (b) as being anticipated by Bata et al WO 97/19934, Sam et al US patent No. 4,022,777, Wozniak et al [Indian J. of Heterocyclic Chemistry (1994) 42:75-80] and Kyowa et al JP 55127205 and the Chemical Abstract reference numbers cited on pages 4-5 of the Office Action as attributable to these references. Applicants respectfully traverse this rejection as follows[1]:

First, it is believed that with respect to claim 1 and claims 52-53 and 67-68 dependent therefrom, the amendment to claim 1 to delete that L can be "-S-, -SH, -$NH_2$ or –NH-", renders this rejection moot.

Second, with respect to claim 37 (and claims 71-74 dependent therefrom) where $R^1$ and $R^4$ are fixed as hydrogen and $R^2$ and $R^3$ are fixed as chlorine, it is believed that the rewriting of this claim as an independent claim where L can be $-SO_2-CH_2-$, -S-, or –SH but not $-NH_2$ or –NH- renders this rejection moot.

Third, it is believed that no amendment to the compounds used in the methods of claims 65 and 75 (these claims recite the compounds of claims 1 and 37 respectfully as they were written prior to the present Amendment) is necessary since the prior art compounds cited by the Examiner are chemical intermediates and not final products and the four prior art references cited under the 102 rejection do not teach the use of the compounds described therein for the treatment of disorders or diseases wherein an activation of the human GLP-1 receptor is beneficial [WO 97/19934 discloses that its compounds show significant activity at the glycine binding site of the NDMA receptor (page 1, lines 26-270), USP 4,022,777 as useful as fungicides (see col. 1, lines 12-13), JP 55167205 as useful as herbicides; and Wozniak says nothing about the utility of the compounds described therein]. Finally, Applicants submit that claims 79-87, directed to specific examples in the application, are free of the cited art.

1 Applicants acknowledge the Examiner's reference to the CASRN #s listed on page 2 of the Office Action and while the Examiner has not applied these as part of the formal 102 (b) rejection, Applicants have, in the interests of furthering prosecution, also addressed these CASRN#s in responding to this Office Action

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Accordingly, in view of the above amendments and remarks, withdrawal of this rejection is respectfully requested.

The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

Date: January 5, 2005

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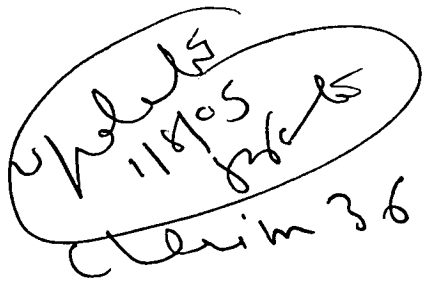

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| NEWS 3 | Apr 09 | BEILSTEIN: Reload and Implementation of a New Subject Area |
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| NEWS 30 | Oct 25 | MEDLINE SDI run of October 8, 2002 |
| NEWS 31 | Nov 18 | DKILIT has been renamed APOLLIT |
| NEWS 32 | Nov 25 | More calculated properties added to REGISTRY |
| NEWS 33 | Dec 02 | TIBKAT will be removed from STN |
| NEWS 34 | Dec 04 | CSA files on STN |
| NEWS 35 | Dec 17 | PCTFULL now covers WP/PCT Applications from 1978 to date |
| NEWS 36 | Dec 17 | TOXCENTER enhanced with additional content |
| NEWS 37 | Dec 17 | Adis Clinical Trials Insight now available on STN |
| NEWS 38 | Dec 30 | ISMEC no longer available |
| NEWS 39 | Jan 21 | NUTRACEUT offering one free connect hour in February 2003 |
| NEWS 40 | Jan 21 | PHARMAML offering one free connect hour in February 2003 |
| NEWS 41 | Jan 29 | Simultaneous left and right truncation added to COMPENDEX, ENERGY, INSPEC |
| NEWS 42 | Feb 13 | CANCERLIT is no longer being updated |

NEWS 43 Feb 24 METADEX enhancements
NEWS 44 Feb 24 PCTGEN now available on STN
NEWS 45 Feb 24 TEMA now available on STN
NEWS 46 Feb 26 NTIS now allows simultaneous left and right truncation
NEWS 47 Feb 26 PCTFULL now contains images
NEWS 48 Mar 04 SDI PACKAGE for monthly delivery of multifile SDI results
NEWS 49 Mar 19 APOLLIT offering free connect time in April 2003
NEWS 50 Mar 20 EVENTLINE will be removed from STN
NEWS 51 Mar 24 PATDPAFULL now available on STN
NEWS 52 Mar 24 Additional information for trade-named substances without structures available in REGISTRY
NEWS 53 Mar 24 Indexing from 1957 to 1966 added to records in CA/CAPLUS

NEWS EXPRESS January 6 CURRENT WINDOWS VERSION IS V6.01a, CURRENT MACINTOSH VERSION IS V6.0b(ENG) AND V6.0Jb(JP), AND CURRENT DISCOVER FILE IS DATED 01 OCTOBER 2002
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Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

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L1 STRUCTURE UPLOADED

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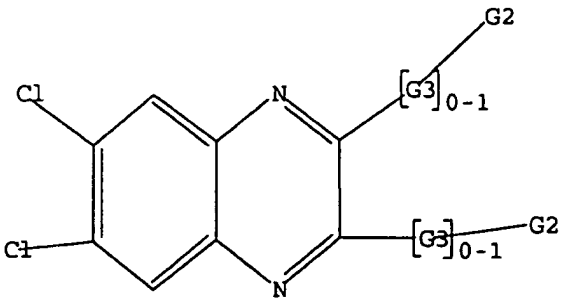
L1 STR




G1

G2 C,H,CF3,CN,NO2,Cb

G3 C,S,N,P

Structure attributes must be viewed using STN Express query preparation.

=> s l1
SAMPLE SEARCH INITIATED 07:54:22 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 86 TO ITERATE

100.0% PROCESSED 86 ITERATIONS 19 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 1164 TO 2276
PROJECTED ANSWERS: 119 TO 641

L2 19 SEA SSS SAM L1

=> file caplus
COST IN U.S. DOLLARS

| | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 0.40 | 0.61 |

FILE 'CAPLUS' ENTERED AT 07:54:29 ON 04 APR 2003
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.


FILE COVERS 1907 - 4 Apr 2003 VOL 138 ISS 15
FILE LAST UPDATED: 3 Apr 2003 (20030403/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> file registry

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---|---|---|
| FULL ESTIMATED COST | 0.42 | 1.03 |

FILE 'REGISTRY' ENTERED AT 07:55:14 ON 04 APR 2003


Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 2 APR 2003 HIGHEST RN 501410-52-2
DICTIONARY FILE UPDATES: 2 APR 2003 HIGHEST RN 501410-52-2

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP PROPERTIES for more information. See STNote 27, Searching Properties in the CAS Registry File, for complete details:
http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf

=> s l1 sss full
FULL SEARCH INITIATED 07:55:30 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 1717 TO ITERATE

100.0% PROCESSED 1717 ITERATIONS 235 ANSWERS
SEARCH TIME: 00.00.01

L3 235 SEA SSS FUL L1

```
=> file caplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                   148.15     149.18

FILE 'CAPLUS' ENTERED AT 07:55:35 ON 04 APR 2003
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FILE COVERS 1907 - 4 Apr 2003  VOL 138 ISS 15
FILE LAST UPDATED: 3 Apr 2003  (20030403/ED)

  This file contains CAS Registry Numbers for easy and accurate
  substance identification.


=> s l3
L4          100 L3

=> d l4 fbib hitstr abs total

L4   ANSWER 1 OF 100  CAPLUS  COPYRIGHT 2003 ACS
AN   2002:389421  CAPLUS
DN   137:126416
TI   Synthesis and application of 2-styryl-6,7-dichlorothiazolo[4,5-
     b]quinoxaline based fluorescent dyes: part 3
AU   Sonawane, N. D.; Rangnekar, D. W.
CS   Dyes research laboratory, Department of Chemical Technology, University of
     Mumbai, Mumbai, 400 019, India
SO   Journal of Heterocyclic Chemistry (2002), 39(2), 303-308
     CODEN: JHTCAD; ISSN: 0022-152X
PB   HeteroCorporation
DT   Journal
LA   English
OS   CASREACT 137:126416
IT   443795-59-3P, 6,7-Dichloro-2,3-quinoxalinediamine
     RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
     (Reactant or reagent)
        (intermediate; prepn., properties and application of styryl
        dichlorothiazoloquinoxaline fluorescent dyes)
RN   443795-59-3  CAPLUS
CN   2(1H)-Quinoxalinethione, 3-amino-6,7-dichloro- (9CI)  (CA INDEX NAME)
```
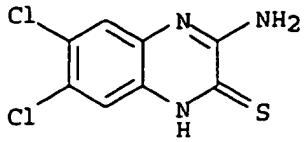
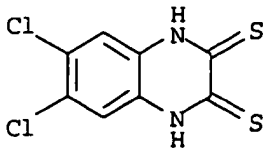



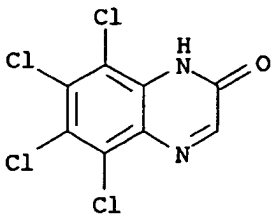
IT **55295-04-0**, 6,7-Dichloro-2,3-quinoxalinedithiol
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; prepn., properties and application of styryl dichlorothiazoloquinoxaline fluorescent dyes)
RN 55295-04-0 CAPLUS
CN 2,3-Quinoxalinedithione, 6,7-dichloro-1,4-dihydro- (9CI) (CA INDEX NAME)



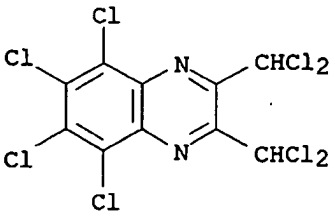
AB A new efficient synthesis of 2-styryl-6,7-dichlorothiazolo[4,5-b]quinoxaline-based fluorescent dyes was achieved by the condensation of 2-methyl-6,7-dichlorothiazolo[4,5-b]quinoxaline with selected 4-(dialkylamino)arylaldehydes and heteroarylaldehydes in the presence of piperidine. The coloristic, fluorophoric, and polyester dyeing properties of these dyes were studied.
RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 100 CAPLUS COPYRIGHT 2003 ACS
AN 2002:316926 CAPLUS
DN 137:210566
TI Quinoxaline 1,4-dioxides: hypoxia-selective therapeutic agents
AU Diab-Assef, Mona; Haddadin, Makhluf J.; Yared, Pierre; Assaad, Chafika; Gali-Muhtasib, Hala U.
CS Department of Biology, American University of Beirut, Beirut, Lebanon
SO Molecular Carcinogenesis (2002), 33(4), 198-205
CODEN: MOCAE8; ISSN: 0899-1987
PB Wiley-Liss, Inc.
DT Journal
LA English
IT **60680-42-4**
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(quinoxaline dioxides as hypoxia-selective antitumor agents)
RN 60680-42-4 CAPLUS
CN Methanone, (6,7-dichloro-1,4-dioxido-3-phenyl-2-quinoxalinyl)phenyl- (9CI) (CA INDEX NAME)

RN 18238-08-9 CAPLUS
CN 2(1H)-Quinoxalinone, 5,6,7,8-tetrachloro- (9CI) (CA INDEX NAME)

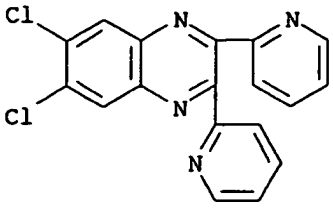


RN 18392-45-5 CAPLUS
CN Quinoxaline, 5,6,7,8-tetrachloro-2,3-bis(dichloromethyl)- (8CI) (CA INDEX NAME)

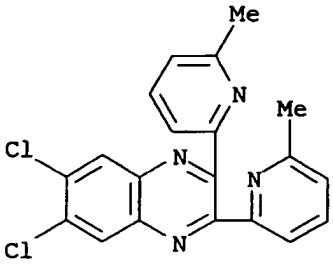


GI For diagram(s), see printed CA Issue.
AB 4,5,6,7-Tetrachlorobenzotriazole and its 1-hydroxy deriv. were reduced with Zn and HCl to give 3,4,5,6-tetrachloro-o-phenylenediamine (I, R = Cl) in good yield. The corresponding diamines (I, R = Me or F) were obtained similarly from 4,5,7-trichloro-6-methyl-(or fluoro)benzotriazole. Alternative syntheses of the tetrachloro- and methyltrichlorophenylenediamines are described. Benzimidazoles, quinoxalines, and other heterocycles derived from the diamines, esp. from tetrachloro-o-phenylenediamine, are reported. 26 references.

L4 ANSWER 243 OF 250 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1967:496531 CAPLUS
DN 67:96531
TI Quinoxalines as analytical reagents. I. Derivatives containing the copper(I)-specific grouping
AU Stephen, William I.; Uden, Peter C.
CS Univ. Birmingham, Birmingham, UK
SO Analytica Chimica Acta (1967), 39(3), 357-68
CODEN: ACACAM; ISSN: 0003-2670
DT Journal
LA English
IT **17401-72-8P 17401-73-9P**
RL: PREP (Preparation)
(prepn. of)
RN 17401-72-8 CAPLUS
CN Quinoxaline, 6,7-dichloro-2,3-di-2-pyridinyl- (9CI) (CA INDEX NAME)



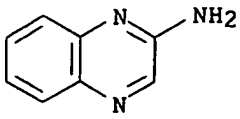
RN 17401-73-9 CAPLUS
CN Quinoxaline, 6,7-dichloro-2,3-bis(6-methyl-2-pyridinyl)- (9CI) (CA INDEX NAME)



AB The prepn., phys. properties, and Cu(I) chelating properties are described of 2,3-bis(2-pyridyl)-quinoxaline (I), 12 derivs. of I prepd. from 2,2'-pyridil[1,2-dioxo-1,2-di(2-pyridyl)ethane]; 2,3-bis[2-(6-methylpyridyl)]quinoxaline (II), and 12 derivs. of II prepd. from 6,6'-dimethyl-2,2'-pyridil[1,2-dioxo-1,2-bis-(6-methylpyridyl)ethane] and aromatic or heterocyclic diamines. I and II and the 24 derivs. contain the Cu(I)-specific cuproine grouping: X-C:N-C-C-N:C-X. The max. absorption and molar absorptivities, .epsilon., in EtOH soln., are given of I, II, the 24 analogs of I and II; and of the Cu(I) chelates of the same compds., after extg. into amyl alc. at pH 4.7. To det. 1-100 ppm. Cu2+ with II, add to a 1-ml. aliquot of the Cu2+ soln. 10 ml. of pH 4.7 0.1M NaOAc-0.1M HOAc buffer, 1 ml. of 1% aq. NH2OH.HCl or freshly prepd. 1% ascorbic acid soln., and 4 ml. of 0.1% II (in EtOH). Mix well, and ext. twice with 4-ml. vols. of isoamyl alc., and collect the org. exts. in a flask. Dil. to 10 ml. with isoamyl alc., and measure the absorbance of the soln. at 525 m.mu. vs. isoamylalc. Beer's law holds for 0-100 ppm. of Cu2+ in the final ext. Prep. the absorbanceconcn. calibration graph in the same way with known amts. of Cu2+. The limit of detection is 1:5 .times. 107, approx. the same as that for cuproine. The reaction of Cu2+ with I gives an orange aq. soln. (max. 445 m.mu.) at high Cu2+/I ratios; when the I is increased, the broad max. becomes .apprx.500 m.mu.. Only Ti3+ at pH <2 (max. 608 m.mu. with II) gave a color reaction with the quinoxaline compds. In the given conditions, Ti3+ and Fe2+ in cation/Cu2+ ratios of 100 do not interfere.

L4 ANSWER 244 OF 250 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1965:416869 CAPLUS
DN 63:16869
OREF 63:2973d-g
TI The dimethyl sulfoxide oxidation of 2,3-bis(bromomethyl)quinoxaline
AU Moriconi, Emil J.; Fritsch, Albert J.

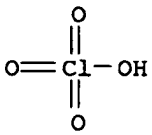
CRN 5424-05-5
CMF C8 H7 N3



RN 115747-27-8 CAPLUS
CN 2-Quinoxalinamine, monoperchlorate (9CI) (CA INDEX NAME)

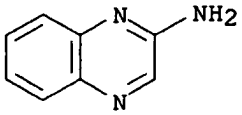
CM 1

CRN 7601-90-3
CMF Cl H O4



CM 2

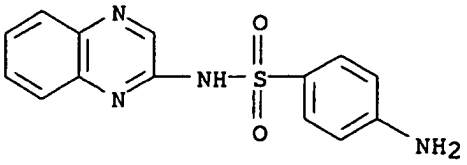
CRN 5424-05-5
CMF C8 H7 N3



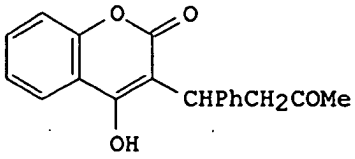
AB Stationary and time-resolved luminescence methods were used to investigate various protonated forms of 2-aminoquinoxaline and 2,3-diaminoquinoxaline. H+ attachment to 2-aminoquinoxaline monocation was discovered in the 1st excited singlet electronic state. Three different protonated structures of 2,3-diaminoquinoxaline were obsd.

L3 ANSWER 639 OF 1398 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1988:473395 CAPLUS
DN 109:73395
TI Dissymmetry of certain substituted dipyridotetraazapentalenes.
AU Pereira, David E.; Clauson, Gary L.; Leonard, Nelson J.
CS Sch. Chem. Sci., Univ. Illinois, Urbana, IL, 61801, USA
SO Tetrahedron (1987), 43(21), 4931-46
CODEN: TETRAB; ISSN: 0040-4020
DT Journal
LA English
OS CASREACT 109:73395

AU Trujillo, William A.
CS Velsicol Chem. Corp., Chicago, IL, 60611, USA
SO Journal of Liquid Chromatography (1980), 3(8), 1219-26
CODEN: JLCHD8; ISSN: 0148-3919
DT Journal
LA English
IT **59-40-5**
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, in rodenticide concs., by high-performance liq. chromatog.)
RN 59-40-5 CAPLUS
CN Benzenesulfonamide, 4-amino-N-2-quinoxalinyl- (9CI) (CA INDEX NAME)



GI



I

AB Warfarin (I) [81-81-2] and sulfaquinoxaline [**59-40-5**] are active ingredients in formulated rodenticide concs. They are solvent-extd.; after injection into a liq. chromatograph, a simple buffered mobile phase is used to elute I as a paired ion and sulfaquinoxaline as an ion-suppressed nonionic species by reverse phase chromatog. A variable wavelength UV detector and an external std. calibration were used for quantitation.

L3 ANSWER 857 OF 1398 CAPLUS COPYRIGHT 2003 ACS on STN
AN 1980:568226 CAPLUS
DN 93:168226
TI Alkynyl- and dialkylnylquinoxalines. Synthesis of condensed quinoxalines
AU Ames, Donald E.; Brohi, M. Ismail
CS Chem. Dep., Chelsea Coll., London, SW3 6LX, UK
SO Journal of the Chemical Society, Perkin Transactions 1: Organic and Bio-Organic Chemistry (1972-1999) (1980), (7), 1384-9
CODEN: JCPRB4; ISSN: 0300-922X
DT Journal
LA English
IT **75163-28-9P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and condensation reaction of, with amines)
RN 75163-28-9 CAPLUS